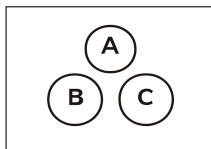


# 14

## Discrete Distribution PMF

# C



$$P_0 = P_1 = P_2 = 1/4$$

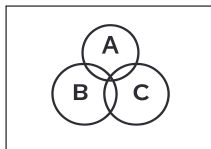
$$X : \Omega \rightarrow \mathbb{R}$$

$$X(1, 1) = 1 + 1 = 2 = \Omega_2$$

$$X(1, 0) = 1 + 0 = 1 = \Omega_1$$

$$X(0, 1) = 0 + 1 = 1 = \Omega_1$$

$$X(0, 0) = 0 + 0 = 0 = \Omega_0$$



**PMF**

$$P(X = 0) = |\Omega_0| \times P_0 = 1 \times 1/4 = 1/4$$

$$P(X = 1) = |\Omega_1| \times P_1 = 2 \times 1/4 = 1/2$$

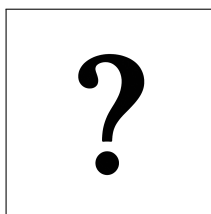
$$P(X = 2) = |\Omega_2| \times P_2 = 1 \times 1/4 = 1/4$$

**CDF**

$$F(X = 0) = P(X = 0) = 1/4$$

$$F(X = 1) = P(X = 0) + P(X = 1) = 3/4$$

$$F(X = 2) = P(X = 0) + P(X = 1) + P(X = 2) = 1$$



$$P(X = x) = \binom{3}{x} (0.4)^x (0.6)^{3-x}, \quad x = 0, 1, 2, 3$$

**PMF = ?**

**CDF = ?**

## 14

Discrete Distribution  
PMF

## C



$$P(X = x) = \binom{3}{x}(0.4)^x(0.6)^{3-x}, \quad x = 0, 1, 2, 3$$

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*PMF*

$$P(X = 0) = \binom{3}{0}(0.4)^0(0.6)^3 = 1 \times 1 \times 0.216 = 0.216$$

$$P(X = 1) = \binom{3}{1}(0.4)^1(0.6)^2 = 3 \times 0.4 \times 0.36 = 0.432$$

$$P(X = 2) = \binom{3}{2}(0.4)^2(0.6)^1 = 3 \times 0.16 \times 0.6 = 0.288$$

$$P(X = 3) = \binom{3}{3}(0.4)^3(0.6)^0 = 1 \times 0.064 \times 1 = 0.064$$

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*CDF*

$$F(0) = P(0) = 0.216$$

$$F(1) = P(0) + P(1) = 0.216 + 0.432 = 0.648$$

$$F(2) = F(1) + P(2) = 0.648 + 0.288 = 0.936$$

$$F(3) = 1$$